

Patent Claims

- 5 1. Method for controlling the fluid balance in an anode circuit of a fuel cell system (200), comprising:

10 determining a measured quantity characteristic of the amount of liquid and/or changes in the amount of liquid in the fuel cell system (200),
adjusting the cooling capacity of a condensing device (150) and/or
adjusting the volume flow rate on the cathode side in response to the
determined measured quantity,

15 cooling gases discharged on the cathode side in the condensing device (150) in order to obtain a condensed liquid,

feeding the condensed liquid into the anode circuit of the fuel cell system (200).

- 20 2. Method for controlling the fluid balance in an anode circuit of a fuel cell system (300, 400), comprising:

25 determining a measured quantity characteristic of the amount of liquid and/or changes in the amount of liquid in the fuel cell system (300, 400),
adjusting the cooling capacity of at least one condensing device (120, 150; 450)
and/or adjusting the volume flow rate on the cathode side in response to the
determined measured quantity,

cooling gases discharged on the cathode side and the anode side in the at least one condensing device (120, 150; 450) in order to obtain a condensed liquid or condensed liquids,

feeding the condensed liquid or liquids into the anode circuit of the fuel cell system (300, 400).

5 3. Method according to one of claims 1 and 2, comprising:

heating the waste gases remaining after the condensation procedure at the fuel cell device (410) of the fuel cell system (400),

10 passing the heated waste gases through a catalytic burner (7).

4. Method according to one of claims 1 and 2, comprising:

mounting a catalytic burner (507) at a fuel cell device (510),

15 passing the waste gases remaining after the condensation procedure through the catalytic burner (507).

5. Fuel cell system (700), comprising:

20 a fuel cell device (710),

a device (560, 660) for determining a measured quantity characteristic of the amount of liquid and/or changes of the amount of liquid in the fuel cell system (200),

25 at least one condensing device (120, 150) for obtaining a condensed liquid at least from gases discharged on the cathode side,

30 a controller for adjusting the cooling capacity of the at least one condensing device (120, 150) and/or for adjusting the volume flow rate on the cathode side

in response to the determined characteristic measured quantity, and

a device for feeding the condensed liquid to the anode circuit of the fuel cell system,

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6. Fuel cell system according to claim 5, comprising:

a heat exchange device (460) for heating gases at the fuel cell device (410).

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7. Fuel cell system according to one of claims 5 and 6, comprising:

a catalytic burner (507) provided at or in the fuel cell device (510).